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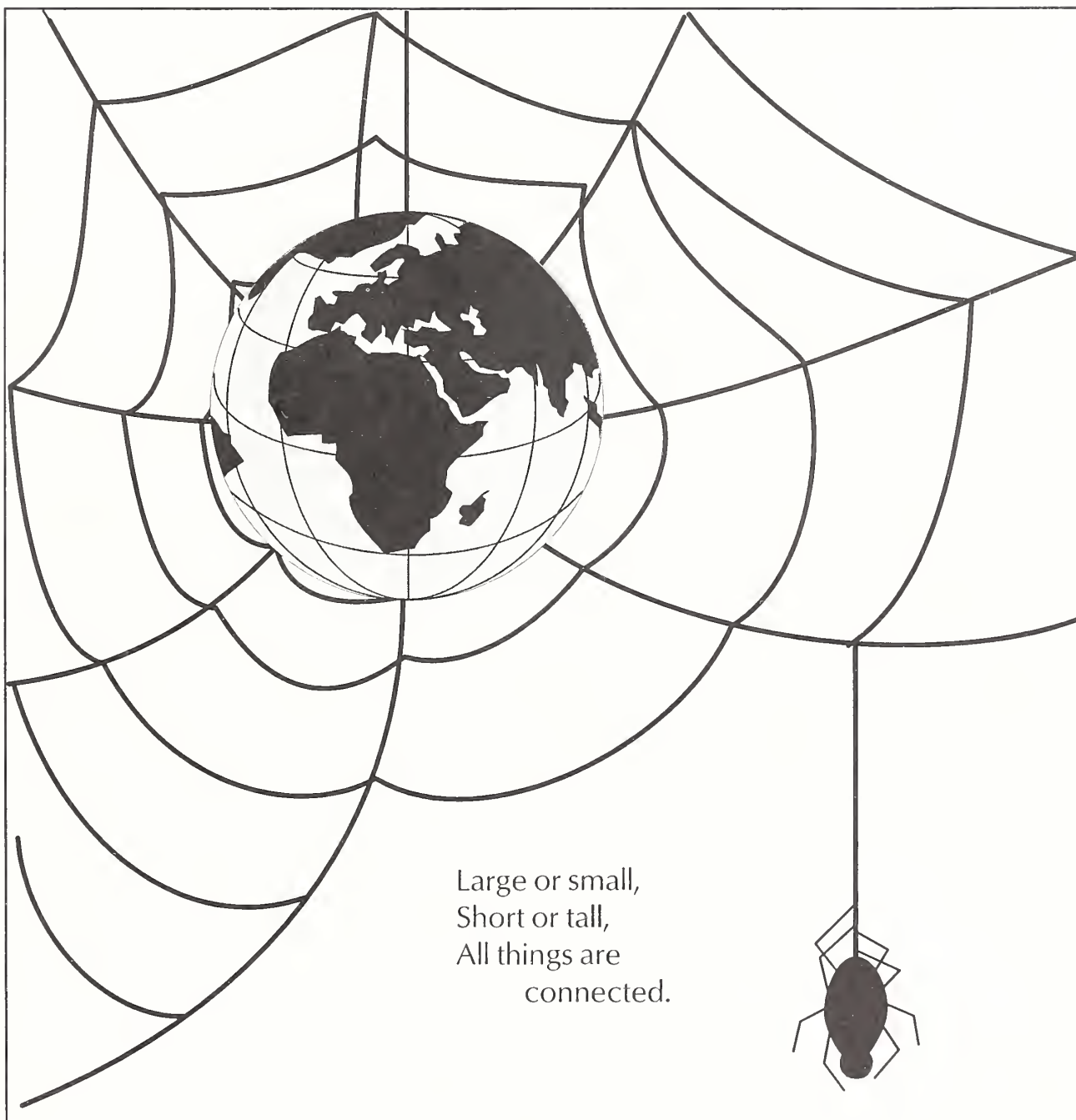
Northeastern Forest  
Experiment Station

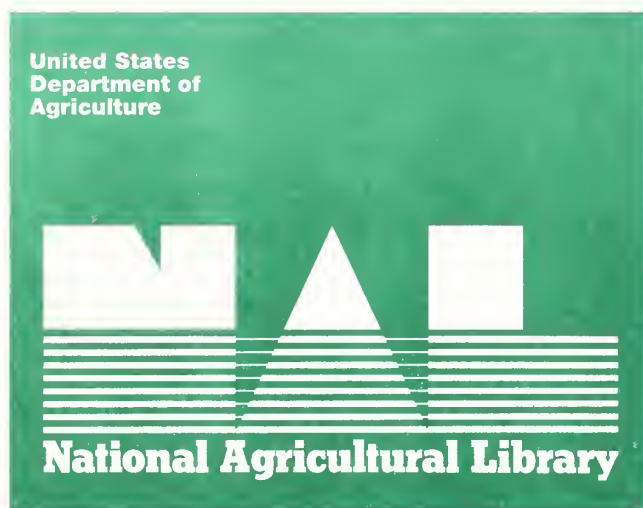
NE/NA-INF-122-94



# *The Web of Life*

## *Activity Booklet*





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# The Web of Life Activity Booklet

*This activity booklet was created by Andrea Webster and Rick Henry, both of whom have been interns under the Branching Out To Youth of America Program. Jackie Twiss provided the graphic design throughout the booklet.*

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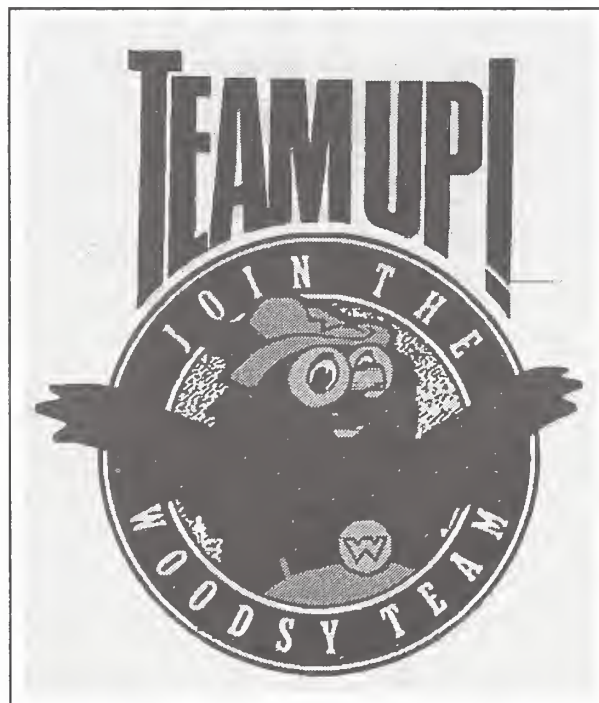


# Introduction

Take a look around. Everything you see is part of the environment in one way or another, from the water that flows out of your faucet to the green leaves which change colors every fall. We are actually one piece of the environmental web of life. Within this web, all strands are connected and depend on each other. If one thing changes, there is a possibility that many things could be affected.

Everyday we breath the air, drink the water, and eat the food that the earth provides for us. These are some of our natural resources. Without these natural resources, humans, plants, and animals would not be able to survive. Take a look in your refrigerator or kitchen cabinets. Most of the items you will find will list water as an ingredient.

This booklet contains activities which deal with the environment and natural resources within it. You will find folktales as well as activities in this booklet which should make your learning experience, an enjoyable one. If you find a word which you are unfamiliar with refer to the glossary in the back of the booklet. We hope, after you have completed the activities within this booklet, you will have become more aware about the environment in which you live, and will continue to refer to this booklet whenever needed.



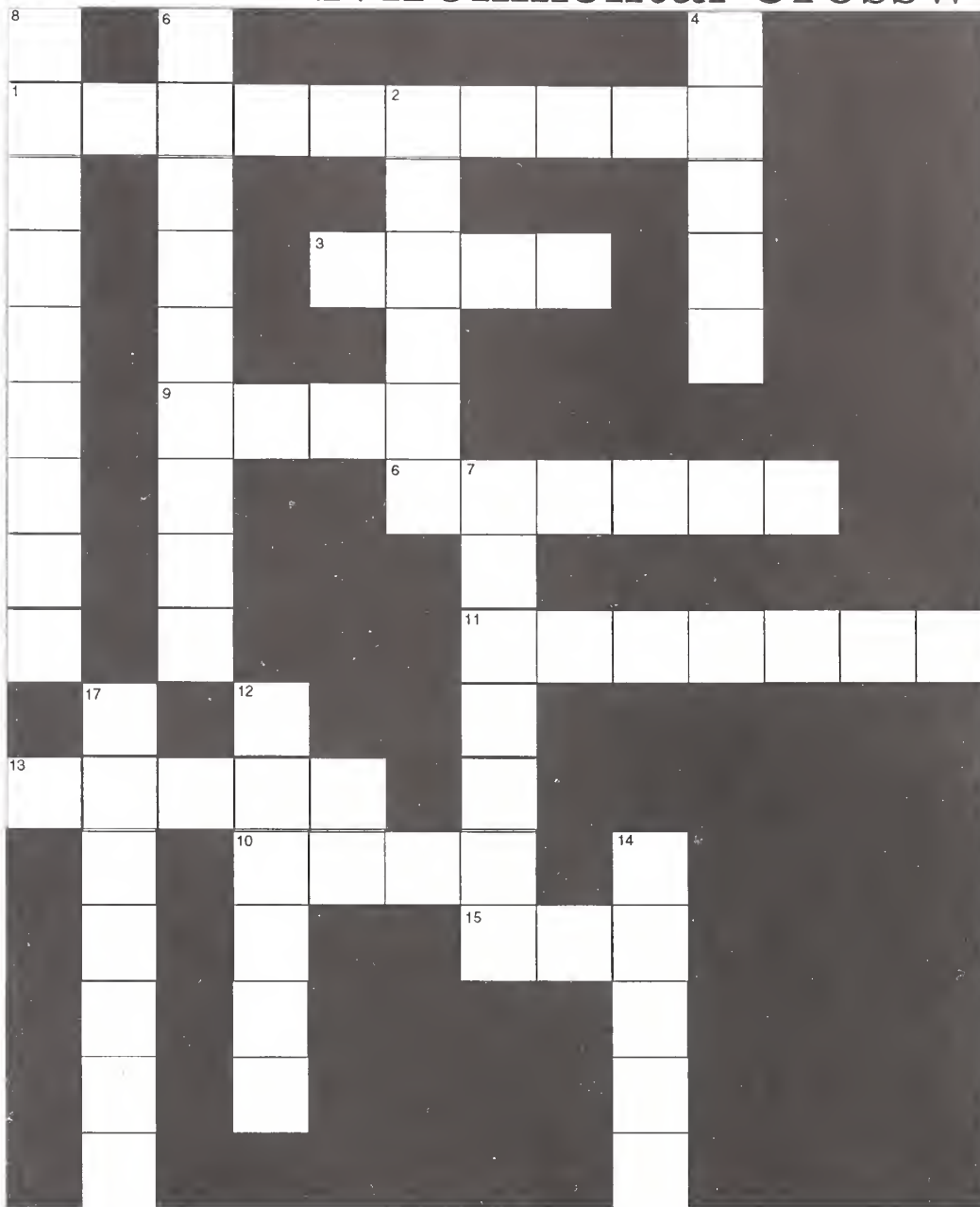
**The Environmental Green Team**

# Spanish Tranlations

1. branches- ramas
2. career- carrera
3. forest- foresta
4. habitat- habitat
5. lateral roots- raices laterales
6. leaves- tcojas
7. natural resource- recursos naturales
8. ocean- oceano
9. pollution- polucion
10. tree product- producto
11. trunk- tronco
12. urban- urbana



# Environmental Crossword



Woodsy  
 honey  
 tree  
 mammals  
 leaves  
 water  
 bark  
 Smokey  
 soil  
 ozone layer  
 community  
 fruit  
 matches  
 chemicals  
 sun  
 earth  
 habitat  
 pollution  
 desert

## Across

1. layer around the earth which stops some harmful rays from reaching the ground
3. outer layer of a tree
5. says "only you can prevent forest fires"
7. animals that are warm-blooded, have fur & produce milk for their young
9. a \_\_\_\_\_ gives us paper, firewood, & furniture
11. you shouldn't play with these
13. H<sub>2</sub>O is another name for \_\_\_\_\_
15. the \_\_\_\_\_ gives us heat & light
17. place where an animal lives/  
another name for a home

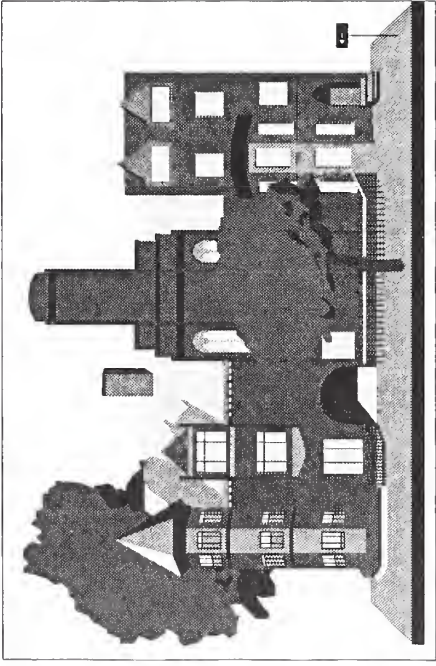
## Down

2. green things at the end of branches
4. apples, lemons & oranges are types of \_\_\_\_\_
6. harmful substance deposited into the air, soil & water
8. worms birds, rats & snakes all live together and form a \_\_\_\_\_
10. place where worms live
12. a habitat with a limited amount of water
14. bees give us \_\_\_\_\_

# HABITAT WHO?

A habitat is the place where a plant or animal lives. You have a habitat; its called your home. Below there are four types of habitats. List three animals that could possibly live in each habitat.

## URBAN

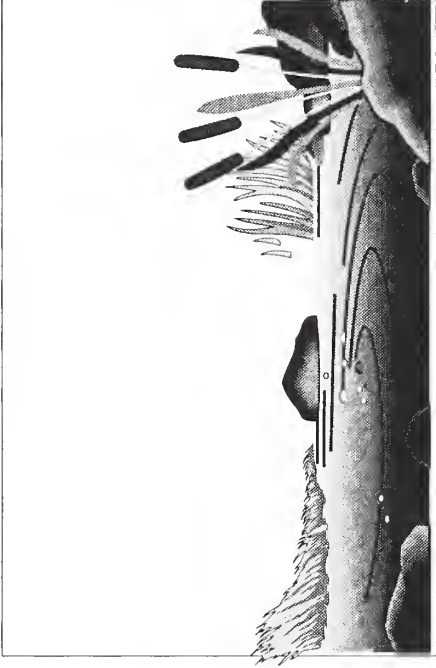


1.

2.

3.

## POND



1.

2.

3.

## FOREST

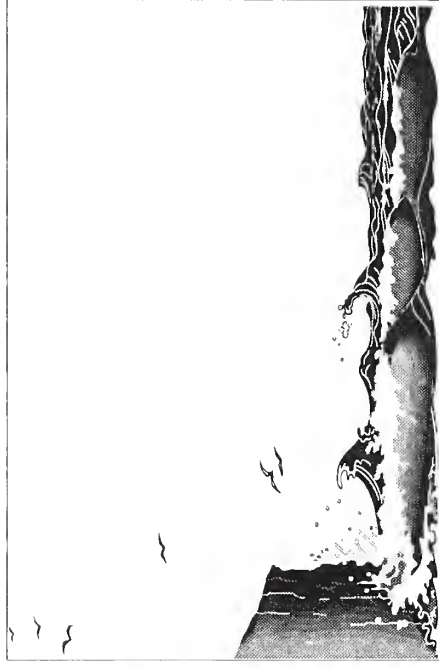


1.

2.

3.

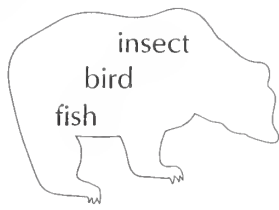
## OCEAN



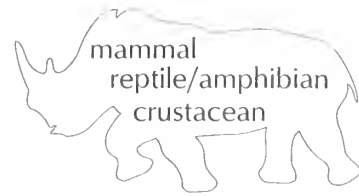
1.

2.

3.



# Animals

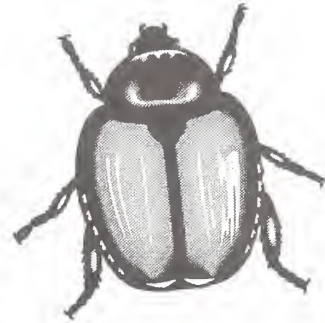


There are many different animal classes. Each class of animals has traits which are specific to their class. See if you can match the animal with the class in which it belongs. Check the glossary if you need help.

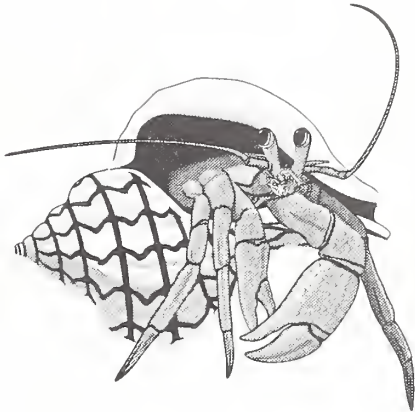
1.



2.



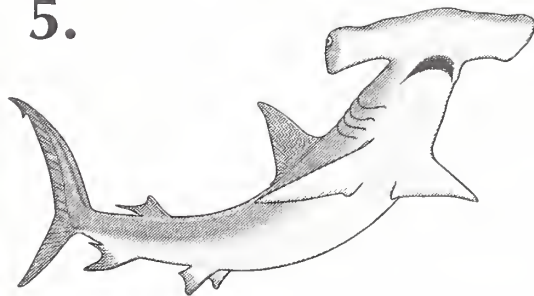
3.



4.



5.



6.



Answers: 1. reptile, 2. insect, 3. crustacean, 4. bird, 5. fish, 6. mammal



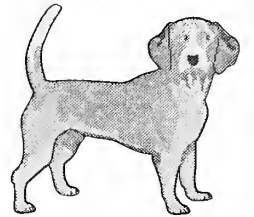
# Tree ID



How many different types of trees do you know? Test your knowledge and unscramble the letters to find out how many you know.



1. w d o d o o g \_ \_ \_ \_ \_



2. l e a m p \_ \_ \_ \_ \_



3. k a o \_ \_ \_

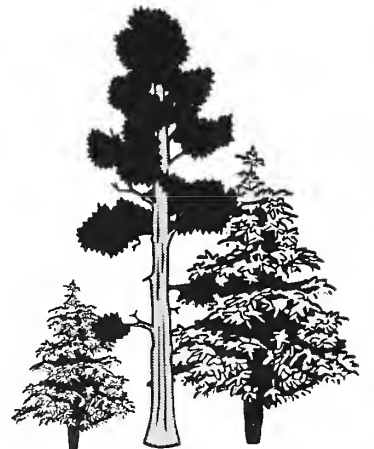


4. r h y r c e \_ \_ \_ \_ \_



5. p s c r e u \_ \_ \_ \_ \_

6. n e p i \_ \_ \_ \_ \_



# Make the Connection

The items listed in the two columns need to be connected. Draw a line from Column I to the item that matches it in Column II.

1. tree product

A. smoke

2. pollution

B. writer

3. habitat

C. oil

4. natural resource

D. chewing gum

5. someone who works  
in the Forest Service

E. pond

## Answers

1. Chewing gum is one of many things that come from trees; some other things are: newspaper, some medicine, almonds, and rubber gloves.

2. Smoke (air), soil, water and noise are forms of pollutions.

3. Desert, pond, ocean, marsh, and prairie are types of habitats.

4. Writers, artists, scientists, foresters, and accountants can all work for the Forest Service.

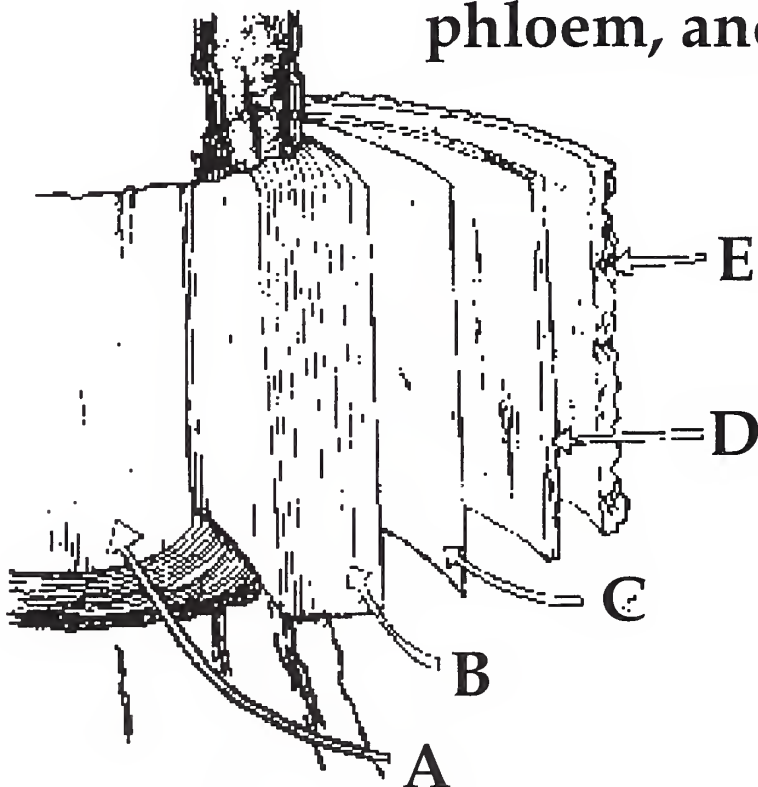
5. Oil, gas, water, trees, soil, people, animals and sunlight are natural resources.

# Tree Parts Seek and Find

m	b	r	a	n	c	h	e	s	t	o	o	r
p	k	s	b	t	r	u	n	k	a	e	r	a
h	a	e	r	d	n	a	j	i	p	l	a	k
l	z	e	c	a	s	h	c	v	r	e	o	l
o	b	i	r	w	a	m	y	r	o	t	a	e
e	l	m	k	g	p	m	s	a	o	c	l	a
m	h	r	u	n	w	s	t	c	t	w	i	v
o	a	k	c	w	o	a	e	o	r	t	n	e
b	f	g	d	o	o	w	t	r	a	e	h	s
x	j	e	t	q	d	m	u	i	b	m	a	c
m	l	a	t	e	r	a	l	r	o	o	t	s

**bark**  
**branches**  
**cambium**  
**crown**  
**heartwood**  
**lateral roots**  
**leaves**  
**phloem**  
**root**  
**sapwood**  
**taproot**  
**trunk**

**Label the Parts: heartwood, sapwood, cambium, phloem, and bark.**



A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_

E. \_\_\_\_\_

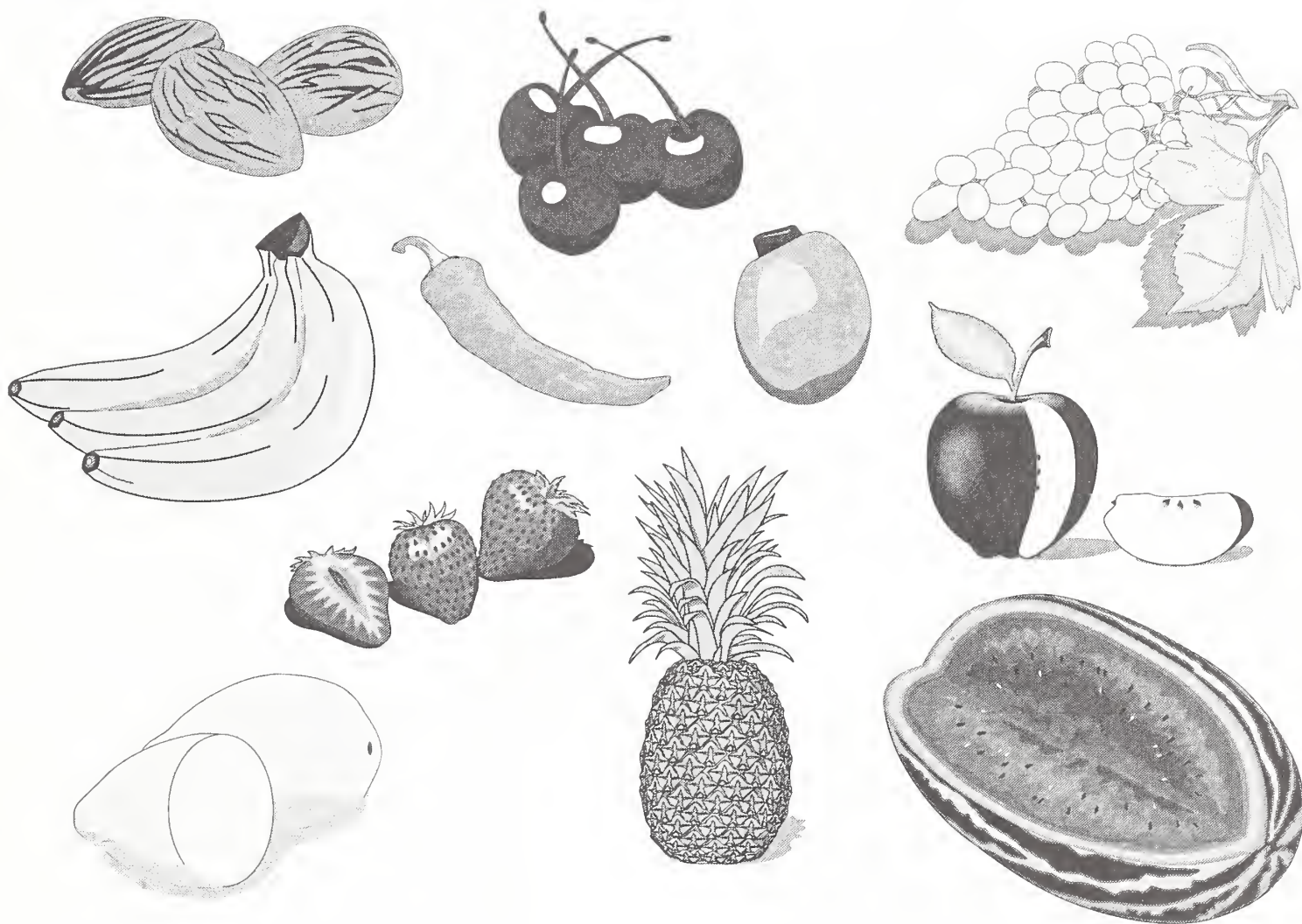


# FRUITS OF THE TREE



Of the following items pictured below, cross out the ones that aren't grown on trees.

---



---

## Answers

You should have crossed out grapes, strawberries and watermelon because they grow on vines. Chilipeppers should also have been crossed out because it is not a fruit.



## Poetry: Windsparks

Poems are a great way to write about events that happen everyday. Some poems include rhymes, have a certain number of lines, or have no rules at all.

We can all be poets! Here is a type of poetry called a windspark:

I dreamed  
I was an Eagle  
Upon a canyon wall  
Waiting for my dinner  
Patiently

I dreamed  
I was a river  
Next to a mountain  
Flowing over its boulders  
Smoothly

The directions for writing a windspark are simple. This allows for lots and lots of creativity! A windspark has five lines that do not have to rhyme, and can contain as many or as few words as the poet wishes.

### DIRECTIONS:

- Line 1) I dreamed
- Line 2) I was...(something or someone)
- Line 3) Where?
- Line 4) What was it doing?
- Line 5) How?

Give it a try!

I dreamed  
I was \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

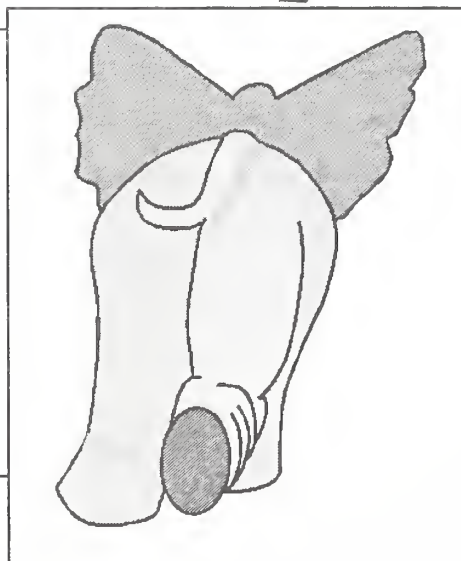
I dreamed  
I was \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Let's Hear it for Folktales

Folktales are stories which are passed down from generation to generation. some are written down and others are retold by word of mouth. did you know that each culture has its own folktales and some even have the same tales, just retold differently?

The folktales you will find here all have an environmental message. Whether its a story detailing how the earth first began, or a tale of how animals come to the aid of humans in trouble, they are all equally important and play a role in our ecosystem.





## The Colossal Pumpkin

*A Tale From Africa*

Long ago in a West African village, a pumpkin grew so large that the villagers called it Feegba. Feegba was a good name, as it means "big thing." Never before in the history of the village had a pumpkin grown so large! It sat on the ground but stood as tall as a man or woman. It was as round as a small house, and as orange as the bright sun. It was the most magnificent pumpkin ever to grow in all of Africa!

One day a farmer and his son decided that the pumpkin was ready to harvest. They brought their largest knife to the field and began to cut it open.

Ouch!" cried the pumpkin. "That hurts. Take your knife away."

"No," responded the farmer. "We are going to make you into soup for the entire village. A feast is being held in your honor this very night, and we must prepare you for the main course."

"Eating me is not the way to honor me. Take your knife and leave me alone!"

"You are ripe," explained the farmer. "We must eat you before you spoil." And he sliced through the stem with his sharp knife.

"Now I'm angry!" said the pumpkin. "And you must be taught a lesson."

Very slowly at first, the pumpkin began to roll toward the farmer and his son. It was on a downhill slope and soon began to gather speed.

The farmer dropped his knife and yelled, "Run, boy, run!" Away they fled, running toward the village below.

Faster and faster, the colossal pumpkin rolled after them. Soon the father and son were running headlong down the hillside, stumbling over rocks and dodging trees in their flight. The pumpkin was right behind, and gaining on them with each roll. It squashed an abandoned hut and flattened a clump of trees. Then it smashed into a small hill and rolled it down flat!

The man and his son were exhausted and couldn't run much further. Still the pumpkin flew down the mountainside, getting closer and closer. At last, father and son came to a

huge, jagged rock and fell down behind it in a heap. the pumpkin couldn't slow down, and it hit the rock with a mighty blow! It split down the middle into tow gigantic halves...

This is the part of the story that is difficult to believe. Most people think it is simply nonsense and couldn't have really happened. But you and I know that anything can happen in a story- and sometimes, the stranger the better! This is what happened:

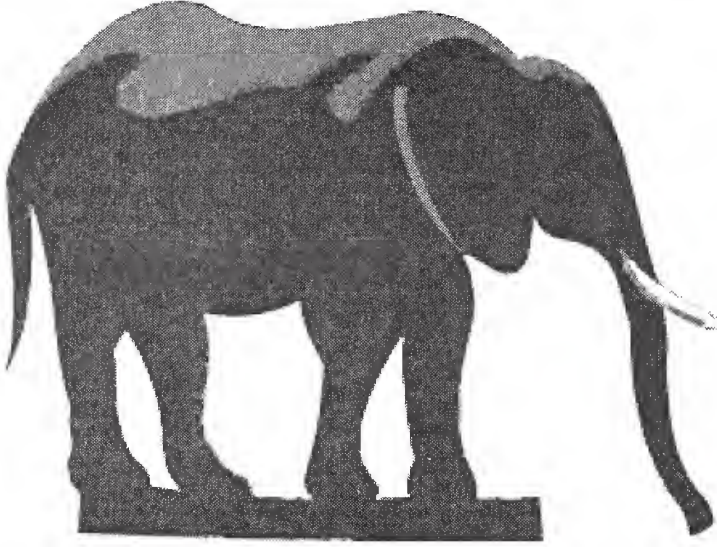
The bottom half of the pumpkin became the earth.  
The top half became the sky.  
The seeds became all the bright stars.

And, for as long as they lived, neither the farmer nor his son ever cut open a pumpkin again.





## The Blind Men and the Elephant



*The Blind Men and The Elephant is a parable with no known author. However, this version included in this activity is edited from : "The Blind Men and the Elephant", retold by Lillian Quigley, 1959.*

Once upon a time, six blind men lived together in India. They had often heard about elephants, but because they were blind, they had never seen one. The Rajah had many elephants. so, the blind men went to the Rajah's palace to "see" an elephant first-hand. They travelled together, walking on behind the

other, communicating with each other so they wouldn't fall down. Each man put his hand on the shoulder of the man in front.

An elephant was standing in the courtyard of the palace. the blind men touched the elephant with their hands.

The first blind man touched the side of the elephant. "An elephant is like a wall," he said.

The second blind man touched the trunk of the elephant and jumped back. "An elephant is like a snake," he said.

The third blind man reached out and touched the tusk. "Sharp! an elephant is like a spear," he said.

The fourth blind man grasped the leg of the elephant. "How thick and tall," he said. "An elephant is like a tree."

The fifth blind man touched the ear of the elephant. "An elephant is like a fan," he said.

The sixth blind man reached out and touched the tail of the of the elephant. "It is thin and tough. An elephant is like a rope.

The blind men were tired and sat down to talk about the elephant. "An elephant is like a wall," said the first blind man.

"What? A wall? You're wrong," said the second blind man. "An elephant is like a snake."

"A snake? You're wrong," said the third blind man. "An elephant is like a spear."

A spear? You're wrong," said the fourth blind man. "An elephant is like a tree."

"A tree?" You're wrong," said the fifth blind man. "An elephant is like a fan."

"A fan" You're wrong," said the sixth blind man. "An elephant is like a rope."

The blind men could not agree. They shouted and argued! Their argument got louder and louder!

The Rajah was awakened by the shouting. He called out his palace window, "Stop!"

The blind men stopped arguing. the Rajah said, "The elephant is a very big animal. Each man only touched on part. You must put all the parts together to find out what an elephant really is like."

The blind men listened. They rested under a cool tree and talked quietly. "The Rajah is a very wise man. Each one of us knows a part. To find out the whole truth, we must put all the parts together," said on blind man. And they did.

They left the courtyard travelling together, walking one behind the other, communicating with each other so they would not fall down. Each man put his hand on the shoulder of the man in front.

The elephant in the story is like a playground, backyard, forest, desert, grassland, city, or the entire environment. They are all big and have a lot of smaller parts.

Write your own story. Have the six blind men visit one of the places listed above. Explain what they felt, and how the blind men might disagree.



# Food Chain



During a certain time every year, many trout swim upstream to the place where they were born. The bears that live near the stream have learned that during this time, the trout make an easy meal, not to mention a very tasty one.



Throughout their trip, the trout eat tiny insects, called mayflies, that live in the water. These three animals, the bear, the trout, and the mayfly, form a food chain. These animals depend on each other to live. If something happens to any one of these animals, the other animals are affected.

Here are a few examples of simple food chains:

In the Desert

Roadrunner

Lizard

Insect

In the Forest

Bear

Trout

Mayfly

In the City

Cat

Pigeon

Seeds

In the Grasslands

Falcon

Prairie dog

Grass

## Questions

1. What happens to the number of trout if all the bears are gone?  
\_\_\_\_\_
2. With no bear in the area, and with more trout, what happens to the number of mayflies?  
\_\_\_\_\_
3. TOUGH ONE: With more bears than normal, what happens to the number of mayflies?  
\_\_\_\_\_

Answers: 1. increase, 2. decrease, 3. increase

**Draw the other half of the objects below.  
See how creative you can be.**

---

1. Tree



2. Mountain Lion  
(Panther)



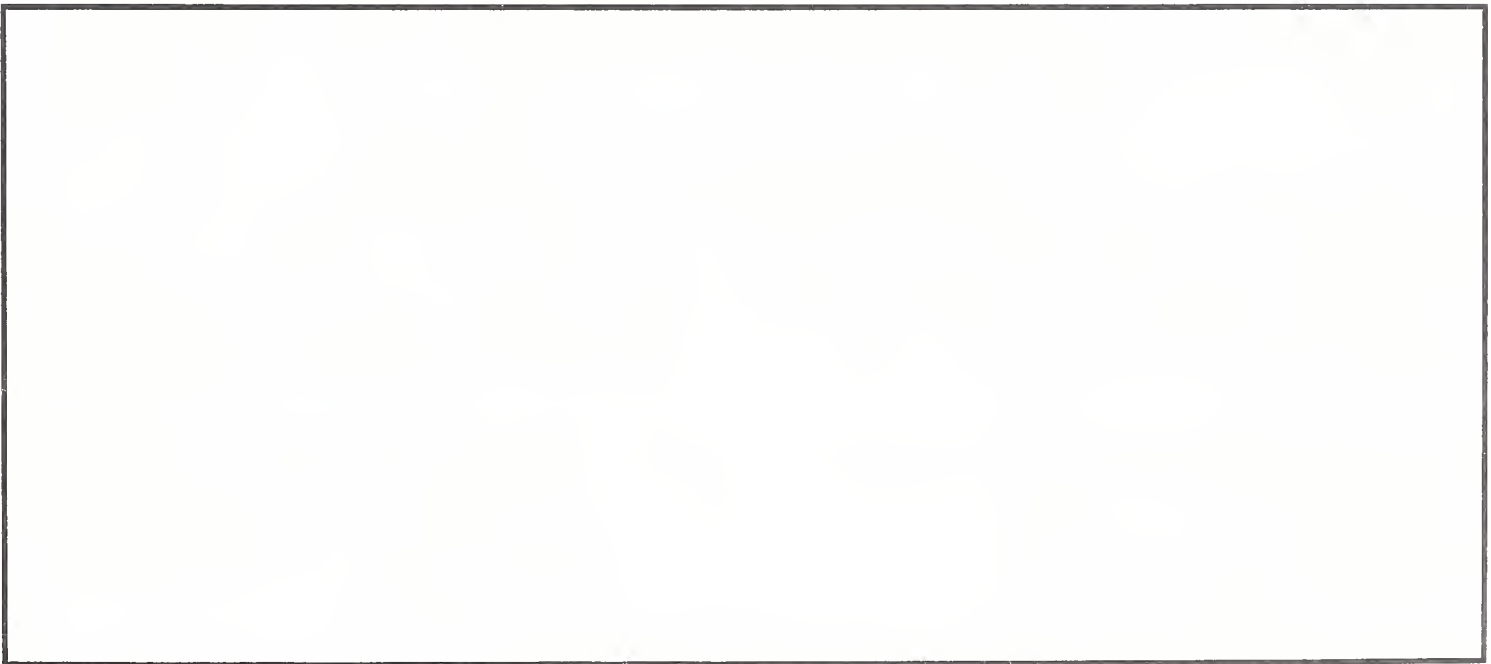
3. Bullfrog



4. Fox



In the box below, create a place where one or all of the living things above could live.





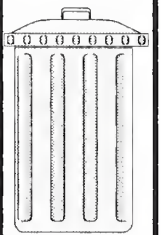
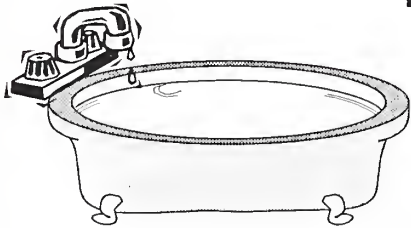
# Where Did The Water Go?

Do you ever wonder where your drinking, cooking and bathing water comes from? Even more so, where does it go after it leaves your eyesight and heads down the drain? Drinking, bathing and even sewer water begins an endless journey back to the waste water treatment plant where it gets recycled.

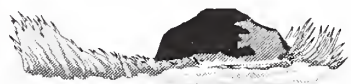
Where does the water treatment facility get its water? Rivers and other bodies of water make up the water distributed by the plant to its customers. Once the water leaves your home, it undergoes several procedures which make it clean and safe to use again.

Four-year-old Fran just finished taking a bath. Fran sees the water go down the drain but doesn't know where it goes. Can you help Fran find out where her bathwater goes?

START



Pickle Pond



Lake Fish

WATER TREATMENT  
PLANT







# Woodsy's Word

What does Woodsy Owl say?  
Solve the math problems using addition, subtraction, multiplication and division. After solving the problems, use the decoder box to fill in the letter that corresponds to the answer you found.

$$\underline{\quad\quad\quad} \\ 30-15+3-9=$$

$$\underline{\quad\quad\quad} \\ 60 \div 20=$$

$$\underline{\quad\quad\quad} \\ 100 \div 2-27=$$

$$\underline{\quad\quad\quad} \\ 69+11+20 \div 50=$$

$$\underline{\quad\quad\quad} \\ 8 \times 8 \div 4-15=$$

$$\underline{\quad\quad\quad} \\ 24 \div 2+9=$$

$$\underline{\quad\quad\quad} \\ 5 \times 4-12-4=$$

$$\underline{\quad\quad\quad} \\ 8 \times 4-12 \div 5=$$

$$\underline{\quad\quad\quad} \\ 10 \div 2 \times 5-5=$$

$$\underline{\quad\quad\quad} \\ 72 \div 12+10=$$

$$\underline{\quad\quad\quad} \\ 16+37-45-4=$$

$$\underline{\quad\quad\quad} \\ 44 \times 2-66=$$

$$\underline{\quad\quad\quad} \\ 200 \div 50 \times 4+4=$$

$$\underline{\quad\quad\quad} \\ 7 \times 3-14=$$

$$\underline{\quad\quad\quad} \\ 6+8+10 \div 6=$$

$$\underline{\quad\quad\quad} \\ 100 \div 10=$$

$$\underline{\quad\quad\quad} \\ 2 \times 4+2=$$

$$\underline{\quad\quad\quad} \\ 24+1 \div 5=$$

$$\underline{\quad\quad\quad} \\ 39+6-25=$$

$$\underline{\quad\quad\quad} \\ 15+3 \div 9=$$

## Decoder Key

A = 1	N = 22
B = 8	O = 4
C = 11	P = 7
D = 16	Q = 15
E = 2	R = 26
F = 19	S = 25
G = 9	T = 20
H = 21	U = 5
I = 3	V = 23
J = 24	W = 6
K = 13	X = 12
L = 10	Y = 18
M = 17	Z = 14

# Scavenger Hunt

See if you can find everything on the list!  
Look at the playground, a parking lot, or  
your own backyard.

## Collect these:

A leaf that has fallen

A rock with two colors

A seed

Three different types of litter  
(example: paper, plastic, aluminum)

A feather

A pine needle

A small branch that has fallen

## Find these, but DO NOT collect:

A flower

An animal track

A spider

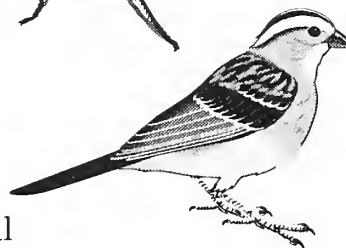
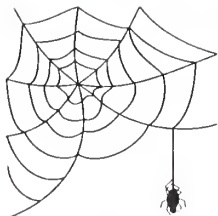
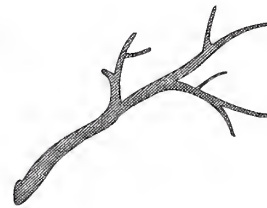
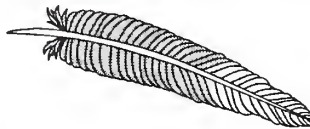
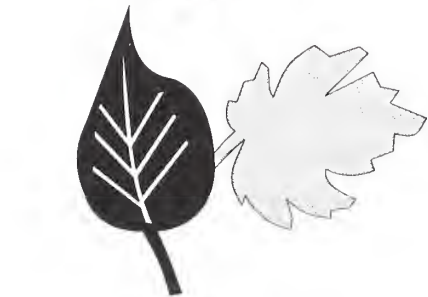
An insect

A bird

The sap from a tree

Moss

The home of an animal



# Glossary

1. ACID RAIN- rain with a high amount of acids that forms in the air when certain pollutants mix with water vapor. Major sources of acid rain pollutants are given off by fossil fuel burning plants and motor vehicles.
2. AEROSOL- container which when under pressure, sprays liquid through a valve (can in which some hairspray and furniture polish comes in).
3. AMPHIBIAN- class of animals which can live both on land and in water.
4. BARK- protective layer of a tree
5. CAMBIUM- thin layer of cells just beneath the bark.
6. CARBON DIOXIDE- colorless, odorless gas which passes out of the lungs during breathing.
7. CARNIVORE- animal that eats other animals.
8. CHLOROPHYLL- green color found in plants.
9. CHLOROFLUOROCARBONS (CFC's)- a form of pollution found in coolants. CFC's were common in refrigerators.
10. COMPOST- mixture of rotting material used to fertilize the soil.
11. CONIFEROUS- a tree that carries its seeds in cones and does not lose its leaves (ex. pine tree).
12. CONSUMER- an organism that gets its energy by feeding on other organisms and their remains.
13. CONSERVATION- the use of natural resources in a way that keeps them from being wasted.
14. CROWN- the top branches of a tree.
15. CRUSTACEAN- animals which have a hard shell or skin, and usually live in or near the water. Examples include lobsters, crabs, shrimp, and barnacles.
16. DECIDUOUS- a plant or tree that loses its leaves in autumn (ex. maple).

17. DECOMPOSER- a plant or animal that feeds on dead material and causes a breakdown in the material being feed upon.
18. DESERT- a dry habitat where plants and animals have adapted to the lack of water.
19. ECOSYSTEM- a community of plants and animals, together with its environment.
20. ENDANGERED SPECIES- plant or animal in danger of becoming extinct (example panda bear).
21. EROSION- the wearing away of sand or soil by wind or water. Erosion occurs naturally in some areas, but is made worse by human activity.
22. EXTINCT- plant or animal no longer found on the earth (example dinosaurs).
23. FERTILIZER- a substance used to make the soil richer.
24. FOOD CHAIN- transfer of food energy from one living thing to another.
25. GLOBAL WARMING- increase in the average temperature of the Earth's atmosphere caused by pollutants in the air which trap heat from the sun. Can also be called the greenhouse effect.
26. GRASSLANDS- vegetation community in which grass is the dominant plant.
27. HEARTWOOD- the older, harder center part of the tree.
28. HERBIVORE- an organism that feeds on plants.
29. LANDFILL- a place where garbage, litter etc., is gotten rid of by burying it in the ground.
30. MAMMAL- group of animals whose females produce milk to feed their young.
31. NATURAL RESOURCES- raw materials provided by the earth such as water, plants, animals, minerals etc...
32. OMNIVORE- organism which eats both plants and animals.
33. ORGANISM- any form of life.
34. OXYGEN- colorless, odorless gas essential to the life process.

35. OZONE LAYER- layer in stratosphere which absorbs the sun's ultraviolet rays.
36. PESTICIDE- chemical used to control unwanted plants and animals.
37. PHOTOSYNTHESIS- process by which green plants produce simple sugars with carbon dioxide, sunlight and water.
38. PHLOEM- plant tissue which carries nutrients from leaves to the other part of the bark (also called inner bark).
39. POLLUTION- harmful substances released into the air, water or land.
40. PREDATOR- an animal that hunts another animal for food.
41. PRESERVATION- belief that natural resources in certain places should not be used.
42. PREY- animal which is hunted and killed by another animal for food. An example would be a snake eating a rat. The rat would be the prey.
43. PRODUCER- plant that makes its own food through photosynthesis.
44. RAINFOREST- dense forest in a rainy region.
45. RECYCLE- reuse over and over again.
46. REPTILE- a cold-blooded crawling vertebrate such as a snake, lizard or turtle.
47. STREAM- a current of water.
48. TAPROOT- works with lateral root to hold tree firmly into the ground and absorbs water and nutrients from the soil.
49. THREATENED- a species that is limited in numbers and may become endangered.
50. TRUNK- thick part of the tree which gives branches support.
51. WASTE- use up needlessly, wear away or ruin.
52. WETLAND- an area that is regularly wet or flooded and where water table stands above land surface for part of the year.
53. XYLEM- plant tissue which carries water and nutrients from the roots to the rest of the plant. Also known as sapwood.



# Reference List

This list of publications contains supplemental activities, short stories, instructor guides, and classroom curriculums. With this literature, instructors and students can further their knowledge about the environment. These publications are just a sample of what can be found through state and federal agencies. By making just a few contacts, a publication can probably be found which fits any number of objectives. Keep Learning!

**"Branching Out to the Youth of America 1992, 1993, and 1994".** United States Department of Agriculture Forest Service; NE/NA-INF-116-93.

**"Project Learning Tree: Environmental Education Activity Guide".** American Forest Foundation, 1993.

**"Project Wild".** Western Regional Environmental Education Council, 1988.

**"The Call of the Wild".** Minnesota Extension Service; 4H-BU-5762 S, 1992.

**"Investigating Your Environment".** United States Department of Agriculture Forest Service; FS-349.

**"This is Your Life, Acer Maple: A Learning Package".** United States Department of Agriculture Forest Service; NE-INF-86-90.

**"Tree Top (grades 1-3)", "Trees + Me = Forestry (intermediate level)", and "Forests Forever (high school)".** Minnesota Extension Service, 1992.

**"Environmental Jeopardy".** The Pennsylvania Horticultural Society, 1992.

**"Teaching For Wilderness: a guide for learning and teaching about wilderness and wild lands".** North Cascades Institute, 1991.

**"Ecology of Missouri Forests: Conservation Education Series".** Missouri Department of Conservation, 1984.

**"Conservation Seeds Activities Book".** Missouri Department of Conservation, 1984.

**"Ecosystem Management Educator Activity and Resource Guide".** NRCEP, 1994.

**"Activities for Learning About Conservation of Forest Resources".** United States Department of Agriculture Forest Service; PA 1214.

**"Thirty-Three Multi-Cultured Tales to Tell".** August House Publishers, Inc., Little Rock, Arkansas, 1993.

**"A Child's Guide to the Ecology of Ponds".** Bard College, Annandale-on-Hudson, New York, 1991.

**"Educator's Guide for Forest Conservation Resources".** National Association of State Foresters, 1993.

Once again, this is only a sample of literature available. Some of it was used and proved very useful in creating this booklet. If a more specific list is desired, please contact your local state and federal agencies. Extension services and education departments are also good avenues to obtain more information, activities, and knowledge.









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